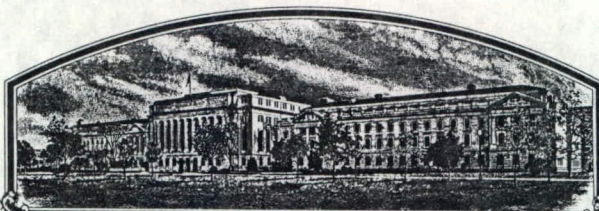


No.



8400076

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME;

W. Weibull A.B., Sweden

Whereas, THERE HAS BEEN PRESENTED TO THE
Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BARLEY

'Birka'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D. C. this 31st day of March in the year of our Lord one thousand nine hundred and eighty-eight.

Attest:

Herbert H. Evans
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Richard E. Lyng
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION

FORM APPROVED: OMB NO. 0581-0055

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

1. NAME OF APPLICANT(S) W. Weibull A. B.		2. TEMPORARY DESIGNATION		3. VARIETY NAME BIRKA	
4. ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) Box 520 S261 24 Landskrona, Sweden		5. PHONE (Include area code) 46 418 78000		FOR OFFICIAL USE ONLY PVPO NUMBER 8400076	
6. GENUS AND SPECIES NAME Barley Hordeum Vulgare		7. FAMILY NAME (Botanical) POACEAE		FILING DATE 4/2/84 TIME 2:30 <input type="checkbox"/> A.M. <input checked="" type="checkbox"/> P.M.	
8. KIND NAME BIRKA		9. DATE OF DETERMINATION July-Sept 1983 1982		AMOUNT FOR FILING \$ 1,800 DATE 4/2/84	
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.)				FEE RECEIVED AMOUNT FOR CERTIFICATE \$ 200.00 DATE Feb. 29, 1988	
11. IF INCORPORATED, GIVE STATE OF INCORPORATION				12. DATE OF INCORPORATION	

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS

~~Sven Sandahl or~~ **STANFORD SEED COMPANY**
~~Drew Kinder~~ **P.O. BOX 366**
~~P. O. Box 250,~~ **560 FULTON STREET**
Buffalo, N. Y. 14240 **(716) 896-1111**
ATT. MR. JIM BILLINGS

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED

- a. ☒ Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
c. ☒ Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
b. ☒ Exhibit B, Novelty Statement
d. ☐ Exhibit D, Additional Description of the Variety

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act.)

☒ Yes (If "Yes," answer items 16 and 17 below) ☐ No

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?

☒ Yes ☐ No

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?

☒ Foundation ☒ Registered ☒ Certified

18. DID THE APPLICANT(S) FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?

☐ Yes (If "Yes," give date)☒ No

19. HAS THE VARIETY BEEN OFFERED FOR SALE OR MARKETING IN THE U.S. OR OTHER COUNTRIES?

☒ Yes (If "Yes," give names of countries and dates)☐ No

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT

Drew D. Kinder

DATE

3/22/84

SIGNATURE OF APPLICANT

DATE

1

INSTRUCTIONS

General: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and \$1,000 fee (*\$500 filing fee and \$500 examination fee*) to U.S. Department of Agriculture, Agricultural Marketing Service, Livestock, Meat, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (*See section 180.175 of the Regulations and Rules of Practice.*) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

Item

- 9 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.
- 14a Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.
- 14b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.
- 14c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.
- 14d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 15 If "Yes" is specified (*seed of this variety be sold by variety name only as a class of certified seed*) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "No," he may change his choice. (*See section 180.16 of the Regulations and Rules of Practice.*)
- 16 See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.

4-2-84
pw

8400076

BIRKA BARLEY

EXHIBIT A

1. Geneology - Birka (yield tested as W6482 in Sweden) was developed at the Weibullsholm Plant Breeding Station in Landskrona, Sweden; breeder, Dr. Goeran Ewertson. Two breeding lines were developed by backcrossing, W62-68 (powdery mildew resistant) and W17-68 (brown rust resistant). These two lines were crossed in 1968.

2. Details of Subsequent Stages of Selection and Multiplication

The pedigree method was used for selection purposes using ear to row technique after F2. W6482 (Birka) was one pure line of many from same cross. Yield trials began in 1975 in the F7 generation. Birka was licensed in Sweden in 1980 when it entered recommendation trials for 3 years prior to sale in Sweden in 1983. Birka was licensed for sale in 1982 in Canada and sold commercially in ~~same year~~. *SPRING 1983.*

Breeding lines of Birka are maintained by W.G. Thompson & Sons Limited, Blenheim, Ontario, Canada; maintenance breeder, L.P. Shugar. 130 pure lines are maintained 12 miles east of Blenheim (from head selections of original breeder seed - heads-- short head rows-- individual long rows-- long rows bulked as breeder seed).

3. Variants - None observed.

4. Evidence of Uniformity & Stability

The characteristics of Birka, as described in Exhibit C, are stable over generations and have been substantiated by inspection records kept by the Canadian Seed Growers Association as inspected by Plant Products of Agriculture Canada since 1982.

See reproduction Birka 12/24/86.

8400078

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BIRKA BARLEY

EXHIBIT B

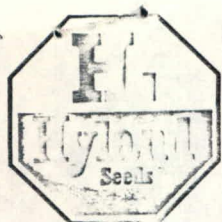
NOVELTY STATEMENT

Birka Barley is most similar to Herta barley, but differs from Herta in height and maturity. When Herta would grow to 84 cm and mature in 95 days, Birka would achieve a height of 78 cm and mature in 96 days. Also, Birka barley has a predominantly blue aleurone colour, whereas Herta's aleurone is about a 50-50 yellow-blue mixture.

3

8400036

4-2-84
pw



The Profit Package

W. G. Thompson & Sons Limited

P.O. BOX 130 - BLENHEIM, ONTARIO N0P 1A0
Phone 519/676-8146 - Telex 064-78529

August 20, 1985

Exhibit B - Novelty Statement - Birka Barley - 8400076

While Birka resembles Herta somewhat in head and plant appearance, it differs from Herta in the following comparison:

Please refer to Appendix 1 & 2 (supplemental) of Exhibit B.

1. Birka has outyielded Herta by approximately 20% over a three year period in New York State (App.1).
2. Birka has a higher test weight (app.1&2) and 1000 K. wt. (App.2).
3. From the New York data, Birka is 1 day later in heading (App.2 supports this) and from Appendix 2 is, also at least 1 day later to mature than Herta.
4. Birka is at least 2" shorter than Herta and has much stronger straw than Herta (App. 1)
5. Birka Barley has an aleurone colour predominately light blue while Herta is classified as mixed. A sample of Birka barley has been provided. Greater than 90% of Birka's kernels are light blue, most of the blue on the non-germ end. Herta seed samples are approximately 50% blue (most of aleurone layer) and 50% yellow. Thus kernel distinguishability exists between Birka and Herta.

Leslie Shugar,
CEREAL BREEDER.

LS/jr

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OCT 15 1985



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EVRO

1984 Spring Barley Cumulative Summary

Department of Plant Breeding - Cornell University

Entry	Grain Yield			Test Wt (3yr) lbs/b	Heading Date June	Lodging (1yr) 0-9	Height (1yr) in
	1983-4	1982-4 b/a	1981-4				
Herta	48	(62)	61	49.2	(23)	(7)	(29)
Perth	50	59	65	48.0	19	5	35
Lud	53	60	60	48.6	23	5	28
Bruce	42	57	63	47.8	17	5.5	28
Larker	43	51	54	46.5	19	6	31
Aramir	53	67	66	50.9	22	2.5	26
Rodeo	50	67		51.2	23	4.5	28
Massay	47	59		44.0	19	7	30
Birka	59	(74)		51.9	(24)	(1.5)	(27)
Bumper	44	61		45.2	19	5	32
SY80298	48			49.1	24		26
SY75858	45			48.9	23		28

Locations: 1982 - Tompkins
1983 - Tompkins, Onondaga, Monroe
1984 - Onondaga, Monroe

M. E. Sorrells
W. R. Coffman
A. M. Neiss

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OCT 15 1985



U.S. DEPARTMENT

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PERFORMANCE OF TB 7902 (BIRKA) 2-ROW SPRING BARLEY
IN THE
EASTERN CO-OPERATIVE TWO-ROW BARLEY TESTS IN 1979, 1980, 1981
Eastern Canada Licensing Trial

TABLE 1

Exhibit B- Nov
-App. 2

CULTIVAR	ATLANTIC (2)*	YIELD (kg/ha) QUEBEC (2)	ONTARIO (5)	MEAN (9)	HECTOLITRE WT. kg/hl (9)	1000 K. WT. gm. (9)	HEIGHT cm. (9)	RESIST. TO LODGING 1-9** (9)	DAYS TO HEAD+ (9)	DAYS TO MATURE+ (6)
1979										
Atlanta	3731	4470	3691	3873	59.8	41.5	72	1.9	62	96
Herta	3953	4164	4097	4080	61.9	39.8	76	2.4	63	96
Summit	4154	4234	4294	4249	61.3	40.4	74	1.6	62	96
TR430	4289	4360	4278	4299	61.4	41.4	72	2.3	61	95
(Elrose)										
TB 7902	4381	4101	4242	4242	62.2	43.9	72	1.4	63	98
1980	(2)	(2)	(5)	(9)	(9)	(9)	(9)	(9)	(8)	(7)
Atlanta	3333	4032	4560	4170	62.1	38.5	83	2.8	63	93
Herta	3399	3814	4405	4050	63.9	37.3	86	3.4	63	93
Summit	3344	3905	4537	4131	63.7	37.2	81	2.2	62	94
Elrose	3898	3864	4434	4188	63.6	38.3	82	3.0	62	92
TB 7902	3483	3507	4828	4236	65.2	41.2	79	1.9	63	94
1981	(2)	(2)	(8)	(12)	(12)	(11)	(12)	(11)	(11)	(10)
Atlanta	3609	4888	4351	4317	62.4	38.6	85	4.0	64	95
Herta	3727	4877	4342	4329	64.3	36.5	88	4.4	64	95
Summit	3321	4129	4426	4192	62.4	35.9	84	3.7	64	96
Elrose	4039	4608	4327	4326	64.0	37.4	85	4.4	64	94
TB 7902	3956	4663	4487	4428	65.3	40.0	81	3.2	65	96
Mean*** 1979-1981										
Atlanta	3558	4463	4201	4120	61.4	39.5	80	2.9	63	95
Herta	3693	4285	4281	4153	63.4	37.9	83	3.4	63	95
Summit	3606	4089	4419	4191	62.5	37.8	80	2.5	63	95
Elrose	4075	4278	4346	4271	63.0	39.0	80	3.2	62	94
TB 7902	3940	4090	4519	4302	64.2	41.7	77	2.2	64	96

* no. of tests

** 1-none. 9-severe



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Phone 519/676-5411 - Telex 064-78529

BIRKA BARLEY

Exhibit B (novelty statement):

EW 6/14/86
~~Birka barley is 92.8% light blue aleurone in colour, with the remaining 8% yellow. Herta is catagorized as 50% blue aleurone.~~

Birka is completely resistant to powdery mildew (Erysiphe graminis); whereas Herta is only moderately so. Not only is Birka 2 inches shorter than Herta, but Birka's rachilla length averages 4.5 mm while Herta is 3.9 mm. Also Birka's rachilla hair length is 3.2 mm, Herta's 3.6 mm.

Birka also has a longer and wider kernel. Birka measures 9.5 mm x 4.8 mm in kernel length x width; Herta 8.5 mm x 4.4 mm. Birka's test weight is 64.3 kg/hl and 1000 kernel weight 41.7 gm.; Herta has a test weight of 63.4 kg/hl and 1000 kernel weight of 37.8 gm.

Leslie Shugar

Leslie Shugar
Cereal Breeder

0271279
BLENHEIM
ONTARIO
CANADA
N0P 1A0

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Phone 519/676-8146 - Telex 064-78529

June 2, 1986.

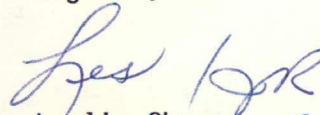
Mr. Drew Kinder,
Whitney-Dickinson Seed Growers Inc.,
Box 607,
52 Leslie Street,
Buffalo, New York.
14240
USA

RE: BIRKA BARLEY

EXHIBIT B(Amended Novelty Statement)

The Aleurone Colour of Birka Barley is predominantly blue, the breeder seed being over 98% blue in colour, and has less than 2% yellow, from visual determination.

Regards,


Leslie Shugar. —

LS/jr





UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Barley)

OBJECTIVE DESCRIPTION OF VARIETY
BARLEY (*HORDEUM VULGARE*)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S)

Whitney Dickinson Seeds, Inc. W. WEIBULL A.B.

FOR OFFICIAL USE ONLY

PVPO NUMBER

8400076

VARIETY NAME OR TEMPORARY DESIGNATION

BIRKA

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)

P. O. Box 250

Box 520

Buffalo, N. Y. 14240

S26/24 LANDSKRONA, SWEDEN

Place the appropriate number that describes the varietal character of this variety in the boxes below.

Place a zero in first box (i.e. 089 or 09) when number is either 99 or less or 9 or less.

1. GROWTH HABIT:

1 1 = SPRING 2 = FACULTATIVE WINTER 3 = WINTER 2 Early Growth: 1 = PROSTRATE 2 = SEMIPROSTRATE 3 = ERECT

2. MATURITY (50% Flowering):

2 1 = EARLY (California Mariout) 2 = MIDSEASON (Betzes) 3 = LATE (Frontier)

No. of days Earlier than } 1 = BETZES 2 = CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON
2 No. of days Later than 1 } 5 = PIROLINE 6 = PRIMUS 7 = UNITAN

3. PLANT HEIGHT (From soil level to top of head):

2 1 = SEMIDWARF 2 = SHORT (California Mariout) 3 = MEDIUM TALL (Betzes) 4 = TALL (Conquest)

1 0 Cm. Shorter than 1 } 1 = BETZES 2 = CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON
 Cm. Taller than } 5 = PIROLINE 6 = PRIMUS 7 = UNITAN

4. STEM:

1 Exertion (Flag to spike at maturity): 1 = 0 - 3 cm. 2 = 3 - 10 cm. 1 Anthocyanin: 1 = ABSENT 2 = PRESENT
3 = 10 - 15 cm.

0 6 NO. OF NODES (Originating from node above ground)

1 Collar Shape: 1 = CLOSED 2 = V-SHAPED 3 = OPEN 1 Shape of Neck: 1 = STRAIGHT 2 = SNAKY
4 = MODIFIED CLOSED OR OPEN 3 = OTHER (Specify) .

5. LEAF:

1 Basal leaf sheath (seedling): 1 = GLABROUS 2 = PUBESCENT 2 Position of flag leaf (at boot stage): 1 = DROOPING 2 = UPRIGHT

2 Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY 1 2 MM. WIDTH (First leaf below flag leaf)
3 = WAXY

2 1 CM. LENGTH (First leaf below flag leaf) 1 Anthocyanin in leaf sheath: 1 = ABSENT 2 = PRESENT

6. HEAD:

1 Type: 1 = TWO-ROWED 2 = SIX-ROWED 3 Density: 1 = LAX 2 = ERECT (Not dense) 3 = ERECT (Dense)

2 Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE 2 Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY 3 = WAXY
4 = OTHER (Specify)

1 Lateral Kernels Overlap: 1 = NONE 2 = AT TIP 3 Rachis (Hair on edge): 1 = LACKING 2 = FEW 3 = COVERED
3 = 1/4 - 1/2 OF HEAD

7. GLUME:

2 Length: 1 = 1/3 OF LEMMA 2 = 1/2 OF LEMMA 2 Hairs: 1 = NONE 2 = SHORT 3 = LONG
3 = MORE THAN 1/2 OF LEMMA

4 Hair covering: 1 = NONE 2 = RESTRICTED TO MIDDLE 3 = CONFINED TO BAND 4 = COMPLETELY COVERED

2 Awns: 1 = LESS THAN EQUAL TO LENGTH OF GLUMES 2 = EQUAL TO LENGTH OF GLUMES
3 = MORE THAN EQUAL TO LENGTH OF GLUMES

3 Awn Surface: 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH

8. LEMMA:

- ☐ 5 Awn: 1 = AWNLESS 2 = AWNLETS ON CENTRAL ROWS, AWNLESS ON LATERAL ROWS
 3 = SHORT ON CENTRAL ROWS, AWNLETS ON LATERAL ROWS 4 = SHORT (less than equal to length of spike)
 5 = LONG (longer than spike) 6 = HOODED
- ☐ 1 Awn Surface: 0 = AWNLESS 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH
- ☐ 2 Teeth: 1 = ABSENT 2 = FEW 3 = NUMEROUS ☐ 1 Hair: 1 = ABSENT 2 = PRESENT
- ☐ 1 Shape of base: 1 = DEPRESSION 2 = SLIGHT CREASE ☐ 2 Rachilla Hairs: 1 = SHORT 2 = LONG
 3 = TRANSVERSE CREASE

9. STIGMA:

- ☐ Hairs: 1 = FEW 2 = MANY

10. SEED:

- ☐ 2 Type: 1 = NAKED 2 = COVERED ☐ 1 Hairs on Ventral Furrow: 1 = ABSENT 2 = PRESENT
- ☐ 4 Length: 1 = SHORT (8.0 mm.) 2 = SHORT TO MIDLONG (7.5 - 9.0 mm.) 3 = MIDLONG (8.5 - 9.5 mm.)
 4 = MIDLONG TO LONG (9.0 - 10.5 mm.) 5 = LONG (10.0 mm.)
- ☐ 2 Wrinkling of hull: 1 = NAKED 2 = SLIGHTLY WRINKLED 3 = SEMIWRINKLED 4 = WRINKLED
- ☐ 2 Aleurone Color: 1 = COLORLESS (White or Yellow) 2 = BLUE
- ☐ 0 0 PERCENT ABORTIVE ☐ 4 0 GMS. PER 1000 SEEDS

11. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

- ☐ 0 SEPTORIA ☐ 1 NET BLOTCH ☐ 1 SPOT BLOTCH ☐ 2 POWDERY MILDEW
- ☐ 1 LOOSE SMUT ☐ 0 BACTERIAL BLIGHT ☐ 1 COVERED SMUT ☐ 0 FALSE LOOSE SMUT
- ☐ 0 STEM RUST ☐ 2 LEAF RUST ☐ 0 SCAB ☐ 1 SCALD
- ☐ 0 AY ☐ 0 BSMV ☐ 1 BYDV ☐ OTHER (Specify)

12. INSECT: (0 = Not tested, 1 = Susceptible, 2 = Resistant)

- ☐ 0 GREEN BUG ☐ 0 ENGLISH GRAIN APHID ☐ 0 CHINCH BUG ☐ 0 ARMYWORM
- ☐ 0 GRASS HOPPERS ☐ 0 CERIAL LEAF BETTLE ☐ 0 OTHER (Specify)
- HESSIAN FLY RACES } ☐ 0 GP ☐ 0 A ☐ 0 B ☐ 0 C
☐ 0 D ☐ 0 E ☐ 0 F ☐ 0 G

13. CHEMICAL (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

- ☐ 0 DDT ☐ 0 OTHER (Specify)

14. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Summit	Seed size	None
Leaf size	Summit	Coleoptile elongation	None
Leaf color	Summit	Seedling pigmentation	Summit
Leaf carriage	Summit		

REFERENCES: The following publications may be used as a reference aid for the standardization of character descriptions and terms used in this form:

1. Wiebe, G. A., and D. A. Reid, 1961, Classification of Barley Varieties Grown in the United States and Canada in 1958, Technical Bulletin No. 1224, U.S. Dept. of Agriculture.
2. Reid, D. A., and G. A. Wiebe, 1968, Barley: Origin, Botany, Culture, Winter Hardiness, Genetics, Utilization, Pests, Agriculture Handbook No. 338, U.S. Dept. of Agriculture. pp. 61 - 84.
3. Malting Barley Improvement Association, Milwaukee, Wisconsin, 1971, Barley Variety Dictionary.

COLOR: Nickerson's or any recognized color fan may be used to determine color of the described variety.

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Barley)

OBJECTIVE DESCRIPTION OF VARIETY
BARLEY (*HORDEUM VULGARE*)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S)

Whitney-Dickinson Seeds, Inc. W. WEIBULL A.B.

FOR OFFICIAL USE ONLY

PVPO NUMBER

8400076

VARIETY NAME OR TEMPORARY DESIGNATION

BIRKA

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)

P. O. Box 250

Buffalo, N. Y. 14240

Box 520

S261 24 LANDSKRONA, SWEDEN

Place the appropriate number that describes the varietal character of this variety in the boxes below.

Place a zero in first box (i.e. or) when number is either 99 or less or 9 or less.

1. GROWTH HABIT:

1 = SPRING 2 = FACULTATIVE WINTER 3 = WINTER Early Growth: 1 = PROSTRATE 2 = SEMIPROSTRATE
3 = ERECT

2. MATURITY (50% Flowering):

1 = EARLY (California Mariout) 2 = MIDSEASON (Betzes) 3 = LATE (Frontier)

No. of days Earlier than } 1 = BETZES 2 = CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON
 No. of days Later than } 5 = PIROLINE 6 = PRIMUS 7 = UNITAN

3. PLANT HEIGHT (From soil level to top of head):

1 = SEMIDWARF 2 = SHORT (California Mariout) 3 = MEDIUM TALL (Betzes) 4 = TALL (Conquest)

Cm. Shorter than } 1 = BETZES 2 = CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON
 Cm. Taller than } 5 = PIROLINE 6 = PRIMUS 7 = UNITAN

4. STEM:

Exertion (Flag to spike at maturity): 1 = 0 - 3 cm. 2 = 3 - 10 cm. Anthocyanin: 1 = ABSENT 2 = PRESENT
3 = 10 - 15 cm.

NO. OF NODES (Originating from node above ground)

Collar Shape: 1 = CLOSED 2 = V-SHAPED 3 = OPEN Shape of Neck: 1 = STRAIGHT 2 = SNAKY
4 = MODIFIED CLOSED OR OPEN 3 = OTHER (Specify) _____

5. LEAF:

Basal leaf sheath (seedling): 1 = GLABROUS 2 = PUBESCENT Position of flag leaf (at boot stage): 1 = DROOPING
2 = UPRIGHT

Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY MM. WIDTH (First leaf below flag leaf)

CM. LENGTH (First leaf below flag leaf) Anthocyanin in leaf sheath: 1 = ABSENT 2 = PRESENT

6. HEAD:

Type: 1 = TWO-ROWED 2 = SIX-ROWED Density: 1 = LAX 2 = ERECT (Not dense)
3 = ERECT (Dense)

Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY
4 = OTHER (Specify) _____ 3 = WAXY

Lateral Kernels Overlap: 1 = NONE 2 = AT TIP Rachis (Hair on edge): 1 = LACKING 2 = FEW 3 = COVERED
3 = 1/4 - 1/2 OF HEAD

7. GLUME:

Length: 1 = 1/3 OF LEMMA 2 = 1/2 OF LEMMA Hairs: 1 = NONE 2 = SHORT 3 = LONG
3 = MORE THAN 1/2 OF LEMMA

Hair covering: 1 = NONE 2 = RESTRICTED TO MIDDLE 3 = CONFINED TO BAND 4 = COMPLETELY COVERED

Awns: 1 = LESS THAN EQUAL TO LENGTH OF GLUMES 2 = EQUAL TO LENGTH OF GLUMES
3 = MORE THAN EQUAL TO LENGTH OF GLUMES

Awn Surface: 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH

8. LEMMA:

- ☐ 5 Awn: 1 = AWNLESS 2 = AWNLETS ON CENTRAL ROWS, AWNLESS ON LATERAL ROWS
 3 = SHORT ON CENTRAL ROWS, AWNLETS ON LATERAL ROWS 4 = SHORT (less than equal to length of spike)
 5 = LONG (longer than spike) 6 = HOODED
- ☐ 1 Awn Surface: 0 = AWNLESS 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH
- ☐ 2 Teeth: 1 = ABSENT 2 = FEW 3 = NUMEROUS ☐ 1 Hair: 1 = ABSENT 2 = PRESENT
- ☐ 1 Shape of base: 1 = DEPRESSION 2 = SLIGHT CREASE ☐ 2 Rachilla Hairs: 1 = SHORT 2 = LONG
 3 = TRANSVERSE CREASE

9. STIGMA:

- ☐ Hairs: 1 = FEW 2 = MANY

10. SEED:

- ☐ 2 Type: 1 = NAKED 2 = COVERED ☐ 1 Hairs on Ventral Furrow: 1 = ABSENT 2 = PRESENT
- ☐ 4 Length: 1 = SHORT (8.0 mm.) 2 = SHORT TO MIDLONG (7.5 - 9.0 mm.) 3 = MIDLONG (8.5 - 9.5 mm.)
 4 = MIDLONG TO LONG (9.0 - 10.5 mm.) 5 = LONG (10.0 mm.)
- ☐ 2 Wrinkling of hull: 1 = NAKED 2 = SLIGHTLY WRINKLED 3 = SEMIWRINKLED 4 = WRINKLED
- ☐ 2 Aleurone Color: 1 = COLORLESS (White or Yellow) 2 = BLUE
- ☐ 0 ☐ 0 PERCENT ABORTIVE ☐ 4 ☐ 0 GMS. PER 1000 SEEDS

11. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

- ☐ 0 SEPTORIA ☐ 1 NET BLOTCH ☐ 1 SPOT BLOTCH ☐ 2 POWDERY MILDEW
- ☐ 1 LOOSE SMUT ☐ 0 BACTERIAL BLIGHT ☐ 1 COVERED SMUT ☐ 0 FALSE LOOSE SMUT
- ☐ 0 STEM RUST ☐ 2 LEAF RUST ☐ 0 SCAB ☐ 1 SCALD
- ☐ 0 AY ☐ 0 BSMV ☐ 1 BYDV ☐ OTHER (Specify)

12. INSECT: (0 = Not tested, 1 = Susceptible, 2 = Resistant)

- ☐ 0 GREEN BUG ☐ 0 ENGLISH GRAIN APHID ☐ 0 CHINCH BUG ☐ 0 ARMYWORM
- ☐ 0 GRASS HOPPERS ☐ 0 CERIAL LEAF BETTLE ☐ 0 OTHER (Specify)
- HESSIAN FLY RACES } ☐ 0 GP ☐ 0 A ☐ 0 B ☐ 0 C
☐ 0 D ☐ 0 E ☐ 0 F ☐ 0 G

13. CHEMICAL (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

- ☐ 0 DDT ☐ 0 OTHER (Specify)

14. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Summit	Seed size	None
Leaf size	Summit	Coleoptile elongation	None
Leaf color	Summit	Seedling pigmentation	Summit
Leaf carriage	Summit		

REFERENCES: The following publications may be used as a reference aid for the standardization of character descriptions and terms used in this form:

1. Wiebe, G. A., and D. A. Reid, 1961, Classification of Barley Varieties Grown in the United States and Canada in 1958, Technical Bulletin No. 1224, U.S. Dept. of Agriculture.
2. Reid, D. A., and G. A. Wiebe, 1968, Barley: Origin, Botany, Culture, Winter Hardiness, Genetics, Utilization, Pests, Agriculture Handbook No. 338, U.S. Dept. of Agriculture. pp. 61 - 84.
3. Malting Barley Improvement Association, Milwaukee, Wisconsin, 1971, Barley Variety Dictionary.

COLOR: Nickerson's or any recognized color fan may be used to determine color of the described variety.